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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,481	08/22/2003	Koichi Shimizu	826.1889	3864

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EXAMINER	
PATEL, SHAMBHAVI K	

ART UNIT	PAPER NUMBER
2128	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/645,481	SHIMIZU, KOICHI	
	Examiner	Art Unit	
	SHAMBHAVI PATEL	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,17-25,27,28 and 30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,17-25,27,28 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Amendments and Remarks submitted 13 December 2007.

2. Claims 1-8, 17-25, 27, 28 and 30 have been presented for examination. Claims 31 and 32 have been cancelled.

Response to Arguments

3. In view of Applicant's amendments, the 35 U.S.C. 101 rejection is withdrawn.

4. Applicant's arguments with respect to the prior art rejection have been fully considered but they are not persuasive.

Regarding the 35 U.S.C. 102 rejection:

i. **Applicant submits,** on page 6 of the remarks, that Muss does not disclose performing the operations of the generating unit.

Examiner notes figure 2, which shows that an application interface can retrieve analytical data from a database. This procedure is further discussed on **page 19** of the reference. When the application needs analytical data, it indicates to the Application Interface what objects or object hierarchies are to be retrieved from the database. In return, it is given NMG data structures containing the required data.

ii. **Applicant submits**, on page 6 of the remarks, that "...Muuss offers no description of how to form or store 'integrated data'…" and that specifically, "Muuss does not describe a combination of data, or a data structure supporting such a combination, but rather a class capable of receiving requests."

Examiner notes that the specification does not define, or even contain the term "integrated data". The Examiner interprets the analytical data that is generated and stored in the Muuss reference to be equivalent to the claimed integrated data. Examiner notes that Muuss does disclose a data structure for storing this data, as disclosed on **page 19** of the reference.

iii. Applicant submits, on page 7 of the remarks, that "...there is nothing to suggest that Muuss stores that 'integrated data'..."

Examiner notes that the specification does not define, or even contain the term "integrated data". The Examiner interprets the analytical data that is generated and stored in the Muuss reference to be equivalent to the claimed integrated data. Examiner notes that Muuss does disclose a data structure for storing this data, as disclosed on **page 19** of the reference.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1-3, 5, 7-8, 17-19, 21, 23-25, 27-28 and 30 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by **Muuss ('Combinatorial Solid Geometry, Boundary Representations, and Non-Manifold Geometry').**

Regarding claims 1 and 17:

Muuss discloses performing an analysis using geometric data to check characteristics of a structure represented by the geometric data, comprising a specifying unit specifying one or more types of analyses from among plural types of analyses, an obtaining unit obtaining necessary conditions from among necessary analytical conditions of the plurality of analyses based on the specified types of analyses, and a generating unit generating analytical data formed by at least the obtained analytical conditions and the geometric data corresponding to the specified types of analyses **('A History of Solid Modeling' pages 2-3, figure 1; 'Interrogating a Solid Model' pages 6-8; page 19)**. The prior art discloses performing solid geometric modeling so that a plurality of analyses may be performed on the model, such as structural analysis, and thermal analysis **(page 2).** . When the application needs analytical data, it indicates to the Application Interface what objects or object hierarchies are to be retrieved from the database. In return, it is given NMG data structures containing the required data. The geometric data is stored in the form of NMG data structures **(page 19).** The results of the analysis are then output to the user and analysis apparatus **(figures 1 and 2)**.

Regarding claims 2-3 and 18-19:

Muuss discloses sending the geometric model and material properties *(analogous to analytical conditions)* to the analysis software. The software then extracts the properties needed, and combines them with the model to perform the analysis **('Interrogating a Solid Model' pages 6-7; figures 1 and 2; 'Thermal Predictions' page 64).**

Regarding claims 5 and 21:

Muuss discloses having analytical conditions include a contact setting of a part boundary **('Non-Manifold Geometry' page 21).**

Regarding claims 7 and 23:

Muuss discloses having analytical conditions that include settings of a shell representation of parts geometric data and of part weights **('Separation of Topology and Geometry' pages 21-22).**

Regarding claims 8 and 24:

Muuss discloses having analytical conditions that include a wavelength of an electromagnetic field in an electromagnetic analysis **('Radar Predictions' page 65).**

Regarding claims 25 and 27:

Muuss discloses generating analytical data formed by the specified types of analysis **(figure 2).**

Regarding claims 28 and 30:

Muuss discloses obtaining a property value that is a necessary analytical condition in the specified analysis from a material database **('Thermal Predictions' page 64).** When performing analysis on a model, the analysis software may extract the necessary parameters from the material properties that accompany the solid geometric model.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim(s) 4, 6, 12, 14, 20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Muuss ('Combinatorial Solid Geometry, Boundary Representations, and Non-Manifold Geometry') in view of Tsap ('Efficient Nonlinear Finite Element Modeling of Nonrigid Objects via Optimization of Mesh Models').**

Regarding claims 4, 6, 12, 14, 20, and 22:

Muuss does not explicitly disclose adjusting the mesh size to an optimum or specific value. **Tsap teaches** finite element analysis using CAD by first forming a mesh. Tsap teaches employing mesh controls (i.e. *trying to minimize the mesh size to an optimum value*) by performing local mesh refinement **(Tsap: section 3.6 'Mesh Control Strategies').** At the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the teachings of Muuss and Tsap because by controlling the size of the mesh, better results are obtained

because the mesh is more accurate **(Tsap: section 3.6 'Mesh Control Strategies')**.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. All claims are rejected.

9. **Examiner's Remarks:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shambhavi Patel whose telephone number is (571) 272-5877. The examiner can normally be reached on Monday-Friday, 8:00 am – 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-2279. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKP

/Kamini S Shah/

Supervisory Patent Examiner, Art Unit 2128